1 Product Summary

1.1 Product Profile

BA101 Battery Tester adopts currently the world's most advanced conductance testing technology to easily, quickly and accurately measure the actual cold cranking amps capability of the motorcycle starting battery, healthy state of the battery itself, and common fault of the motorcycle starting system and charging system, which can help maintenance personnel to find the problem quickly and accurately, thus to achieve quick motorcycle repair.

1. Test all automotive cranking lead acid battery, including ordinary lead acid battery, AGM flat plate battery, AGM spiral battery, and Gel battery, EFB battery, etc.
2. Directly detect bad cell battery.
3. Polarity reverse connection protection, reverse connection will not damage the tester or affect the motorcycle and battery.
4. Directly test the battery with loss of electricity, no need to full charge before testing.
5. Testing standards include currently the world's majority of battery standards, CCA, BCI, CA, MCA, JIS, DIN, IEC, EN, SAE, GB.
6. Support multi-languages, customer can select different language package, which includes: Chinese Simple, Chinese Traditional, English, Japanese, Russian, Spanish, French, Italian, German, etc. Other languages can also be customized according to user's need.

1.2 Product Function

Main functions of BA101 battery tester include: battery test, cranking test, charging test and other additional functions.

Battery test is mainly targeted to analyze the battery healthy status to calculate the actual cold cranking capability of the battery and the aging extent, which provide reliable analysis evidence for the test and maintenance of the battery. It notifies the user to replace battery in advance when the battery getting aged.

Cranking test is mainly to test and analyze the starting motor. Through testing the actual required cranking current and cranking voltage of the starting motor, it can find out whether the starting motor works fine. There are several reasons why the starting motor is abnormal: lubricating system fault causing the starting loaded torque increasing or rotor friction of the starting motor causing the increasing friction of the starting motor itself.

Charging test is to check and analyze the charging system, including generator, rectifier, rectifier diode, etc., thus to find out whether the output voltage of the generator is normal, the rectifier diode works fine and the charging current is normal. Suppose one of the above mentioned parts is not in normal situation, it will lead to over charge or incomplete charge of the battery, thus the battery will be quickly damaged and also greatly shorten the using life of other loaded electrical appliance.

Additional functions include: Set language, voltmeter and screen brightness adjustment.

1.3 Technical Parameters

1. Cold Cranking Amps Measure Range:

Measure Standard	Measure Range
CCA	20-300
BCI	20-300
CA	20-300
MCA	20-300
JIS	26A17—50D20
DIN	20-200
IEC	20-200
EN	20-300
SAE	20-300
GB	20-200

2. Voltage Measure Range: 8-30V DC

1.4 Working Environment Requirement

Working Environment Temp.: -20°C-60°C

It is applicable for automotive manufacturers, automotive maintenance and repair workshops, automotive battery factories, battery distributors, and educational organizations, etc. automotive

2 PRODUCT INFORMATION

2.1 Tool Description

- **Up / Down keys:** Select upwards or downwards via white UP and DOWN keys.
- **Exit key:** Exit to previous menu via blue EXIT key.
- **ENTER key:** Confirm the selection via green ENTER key
- **Mini-USB Socket (in the side of the product):** Connect to computer for print via USB cable.

2.2 Product Specifications

1). Display: LCD, 2 lines, 8 characters, backlit

2). Operating Temperature: 0 to 50°C (-32 to 122 F°)

3). Storage Temperature: -20 to 70°C (-4 to 158 F°)

4). Power—provided via detachable heavy duty OBD II cable

2.3 Accessories Included

1) User Manual -- Instructions on tool operations

2) USB cable -- Provides link to tool and computer for print..

3). CD--- Print software inside.

2.4 Product Setup

The tool allows you to make the following adjustments and settings:

1) Language: Selects desired language.

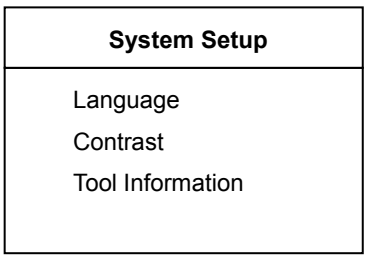
2) Contrast adjustment: Adjusts the contrast of the LCD display.

3) Tool information: The tool show the version and produced date.

To enter the Tool Setup menu

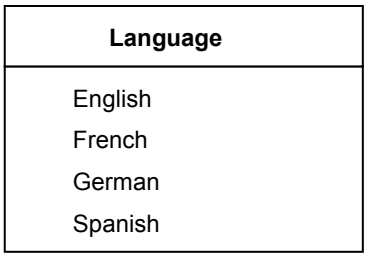
From the second startup screen, press Exit button to enter Main menu. Press

Down button to select the Tool Setup function.



Language:

1) From Tool Setup menu, use Enter button to select Language

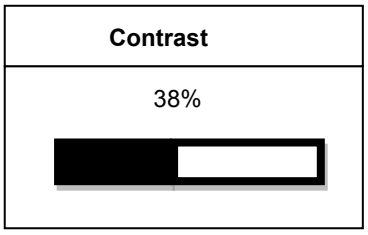


2) Use UP and DOWN button to select the desired language and press ENTER button to save your selection and return to previous menu.

Contrast

1) From Tool Setup menu, use Enter button to select contrast.

2) Use UP and DOWN button to select the contrast value and press ENTER button to save your selection and return to previous menu.



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Tool Information

From Tool Setup menu, use Enter button to select Tool Information

Press exit to return the previous menu.

Tool Information
Software Version: 1.00 Hardware Version: 1.00

3 Battery Test

After entering battery test program, tester displays the tester model and version

Tester will display the following contents in a sequence, select accordingly.

3.1Quick test

It can make sure the battery status, including voltage, CCA, electronic resistance, rated CCA, charging value, healthy value and testing result in one second. Once input the AH value—battery rated capacity, which is marked in the label of the battery.

1). Press UP/DOWN key to select the Quick test, then press ENTER key to confirm.

Main Menu
1.Quick Test 2.Battery in Motorcycle 3.Out of Motorcycle 4.Review Data 5. Print Data 6.System Setup

2). Input the rated battery capacity—xx AH, in general, the battery capacity for 12V motorcycle is below 30AH.

Input AH value
8 A-H Please input the A-HR value in the Label of the battery.

3). Then press enter key, the testing result will show one of these, as below

. Battery test result includes 5 types as following:

1) Good Battery

Healthy:96% 110CCA Charge:98% 12.54V Internal R=24.66mΩ Rated: 125A GOOD BATTERY

The battery is without any problem, please be relaxed to use!

2) Good, Recharge

Healthy:78%	80CCA
Charge:30%	11.20V
Internal R=37.2mΩ	
Rated: 125A	
GOOD, RECHARGE	

Good battery but low current, recharge before using.

3) Replace

Healthy:46%	40CCA
Charge:80%	9.68V
Internal R=88.1mΩ	
Rated: 125A	
REPLACE	

The battery is near to or already reached the end of the using life, replace battery, otherwise, bigger danger will be followed.

4) Bad Cell, Replace

Healthy:0%	0CCA
Charge:20%	10.64V
Internal R=100.2mΩ	
Rated: 125A	
BAD CELL，REPLACE	

Battery interior damaged, bad cell or short circuit, replace battery.

5) Charge, Retest

Healthy:39%	100CCA
Charge:20%	12.08V
Internal R=80.1mΩ	
Rated: 125A	
CHARGE-RETEST	

Unstable battery shall be recharged and retested to avoid error. If same test result appears after recharge and retest, the battery is regarded as damaged, replace the battery.

Battery In-Motorcycle or Battery Out-Of-Motorcycle

Press UP/DOWN key to select the battery location, in motorcycle or out of motorcycle, then press ENTER key to confirm.

Battery in motorcycle means battery is connected with motorcycle generator or motorcycle electrical appliance.

Main Menu
1.Quick Test
2.Battery in Motorcycle
3.Out of Motorcycle
4.Review Data
5. Print Data
6.System Setup

3.2 Battery in motorcycle

Choose the battery in motorcycle and press Enter key, then it will enter the below menu.

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Test in Motorcycle
1.Battery Test

3.2.1 Batter test in motorcycle

When surface charge detected by the tester, it prompts "SURFACE CHARGE, TURN LIGHTS ON"

Turn lights on as prompted to eliminate battery surface charge, tester will then display the following messages in a sequence:

Battery Test
1.Check surface charge, Turn lights on. 2. Take headlights on about 10 seconds. 3.Turn lights off.

Now the tester detects the surface charge has been eliminated, turn lights off as prompted, then press ENTER key. The tester will recover automatic test

OUT-OF-MOTORCYCLE means battery is not connected with any of the motorcycle loaded, i.e. battery connection is cut off.

Select Battery Type

After the battery charge status selected, tester will prompt to select battery type, i.e. Regular Flooded, AGM Flat Plate or AGM Spiral, Gel and EFB battery. Press UP/DOWN key to select battery type, then press OK key to confirm

Battery Type
1.Regular Flooded. **2. AGM Flat Plate.** **3.AGM spiral** **4.GEL** **5.EFB**

Battery System Standard and Rating

BA101 battery tester will test each battery according to the selected system and rating.

Use UP/DOWN key to select according to the actual system standard and rating marked on the battery. Use UP/DOWN key to select according to the actual system standard and rating marked on the battery. See in the below picture, the arrow indicated location.

CCA: Cold Cranking Amps, specified by SAE&BCI, most frequently used value for starting battery at 0°F (-18°C).

BCI: Battery Council International standard

CA：Cranking Amps standard, effective starting current value at 0°C

MCA: Marine Cranking Amps standard, effective starting current value at 0°C.

JIS：Japan Industrial Standard, displayed on the battery as combination of the numbers and letters, e.g. 55D23,80D26.

DIN：German Auto Industry Committee Standard

IEC： Internal Electro technical Commission Standard

EN： European Automobile Industry Association Standard

SAE: Society of Automotive Engineers Standard

GB：China National Standard

Select Input
CCA

Rating range as following:

Measure Standard	Measure Range
CCA	20-300
BCI	20-300
CA	20-300
MCA	20-300
JIS	26A17—50D20
DIN	20-200
IEC	20-200
EN	20-300
SAE	20-300
GB	20-200

Input correct test standard and rating, press ENTER key, tester starts to test, and dynamic interface "TESTING" prompted. See below:

Setting Rate
500 **CCA**

It takes around 3 seconds to display the battery test result.

Battery Test Result

Battery test result includes 5 types as following:

1) Good Battery

Healthy:96% 110CCA
Charge:98% 12.54V
Internal R=24.66mΩ
Rated: 125A
GOOD BATTERY

The battery is without any problem, please be relaxed to use!

2) Good, Recharge

Healthy:78%	80CCA
Charge:30%	11.20V
Internal R=37.2mΩ	
Rated: 125A	
GOOD, RECHARGE	

Good battery but low current, recharge before using.

3) Replace

Healthy:46%	40CCA
Charge:80%	9.68V
Internal R=88.1mΩ	
Rated: 125A	
REPLACE	

The battery is near to or already reached the end of the using life, replace battery, otherwise, bigger danger will be followed.

4) Bad Cell, Replace

Healthy:0%	0CCA
Charge:20%	10.64V
Internal R=100.2mΩ	
Rated: 125A	
BAD CELL，REPLACE	

Battery interior damaged, bad cell or short circuit, replace battery.

5) Charge, Retest

Healthy:39%	100CCA
Charge:20%	12.08V
Internal R=80.1mΩ	
Rated: 125A	
CHARGE-RETEST	

Unstable battery shall be recharged and retested to avoid error. If same test result appears after recharge and retest, the battery is regarded as damaged, replace the battery.

Attention: If "Replace" resulted from IN-MOTORCYCLE mode, it might be the reason that motorcycle cable is not well connected with the battery. Ensure to cut off the cable and retest the battery under OUT-OF-MOTORCYCLE before making a decision to replace battery.

NOTE: After testing, if need to Exit, press EXIT key to directly Exit to the startup interface.

After testing: if it's "IN-MOTORCYCLE" test state, press ENTER key will bring to Cranking Test.

3.3 Battery out of motorcycle test

OUT-OF-MOTORCYCLE means battery is not connected with any of the motorcycle loaded, i.e. battery connection is cut off.

Choose the battery out of motorcycle test

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Main Menu
1.Quick Test 2.Battery in Motorcycle 3.Out of Motorcycle 4.Review Data 5. Print Data 6.System Setup

3.3.3 Select Battery Type

After the battery charge status selected, tester will prompt to select battery type, i.e. Regular Flooded, AGM Flat Plate or AGM Spiral, Gel and EFB battery. Press UP/DOWN key to select battery type, then press OK key to confirm

Battery Type
1.Regular Flooded. **2. AGM Flat Plate.** **3.AGM spiral** **4.GEL** **5.EFB**

Battery System Standard and Rating

BA101 battery tester will test each battery according to the selected system and rating.

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DIN：German Auto Industry Committee Standard

IEC： Internal Electro technical Commission Standard

EN： European Automobile Industry Association Standard

SAE: Society of Automotive Engineers Standard

GB：China National Standard

Select Input
CCA

Rating range as following:

Measure Standard	Measure Range
CCA	20-300
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MCA	20-300
JIS	26A17—50D20
DIN	20-200
IEC	20-200
EN	20-300
SAE	20-300
GB	20-200

Input correct test standard and rating, press ENTER key, tester starts to test, and dynamic interface "TESTING" prompted. See below:

Setting Rate
500 **CCA**

It takes around 3 seconds to display the battery test result.

Battery Test Result

Battery test result includes 5 types as following:

1) Good Battery

Healthy:96% 110CCA
Charge:98% 12.54V
Internal R=24.66mΩ
Rated: 125A
GOOD BATTERY

The battery is without any problem, please be relaxed to use!

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2) Good, Recharge

Healthy:78% 80CCA
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Internal R=37.2mΩ
Rated: 125A
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Good battery but low current, recharge before using.

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3) Replace

Healthy:46%	40CCA
Charge:80%	9.68V
Internal R=88.1mΩ	
Rated: 125A	
REPLACE	

The battery is near to or already reached the end of the using life, replace battery, otherwise, bigger danger will be followed.

4) Bad Cell, Replace

Healthy:0%	0CCA
Charge:20%	10.64V
Internal R=100.2mΩ	
Rated: 125A	
BAD CELL，REPLACE	

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Battery interior damaged, bad cell or short circuit, replace battery.

5) Charge, Retest

Healthy:39%	100CCA
Charge:20%	12.08V
Internal R=80.1mΩ	
Rated: 125A	
CHARGE-RETEST	

Unstable battery shall be recharged and retested to avoid error. If same test result appears after recharge and retest, the battery is regarded as damaged, replace the battery.

3.4 Review Data

Choose the function of Review Data

Main Menu
1.Quick Test
2.Battery in Motorcycle
3.Out of Motorcycle
4.Review Data
5. Print Data
6.System Setup

Check the history of battery testing result

Healthy:96%	490CCA
Charge:98%	12.64V
Internal R=6.1mΩ	
Rated: 500A	
GOOD BATTERY	

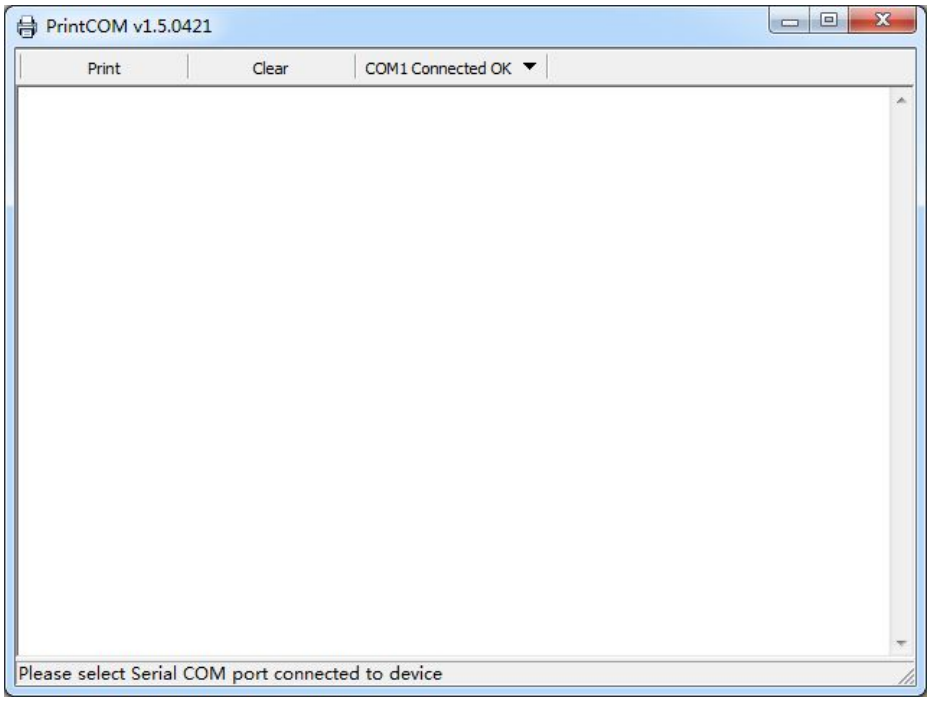
3.5 Print Data

Before choose the print data function, it is necessary to connect the tool to the computer via USB cable.

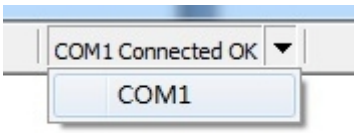
Once all are available, please kindly insert the CD to the computer

1. Install the USB driver firstly.

2. Then open the Print software



3. Choose the COM Port NO.



If there are some data history in print software, please kindly clear them.

4. Choose the function of Print Data in the tool

Main Menu
1.Quick Test
2.Battery in Motorcycle
3.Out of Motorcycle
4.Review Data
5. Print Data
6.System Setup

5.Once the data is transferred to the computer, the print software will show these information

Healthy:96%	490CCA
Charge:98%	12.64V
Internal R=6.1mΩ	
Rated: 500A	
GOOD BATTERY	

Besides, the tool will turn to below menu.

Print Data
OK

Press exit to return

3.6 System setup

Please kindly review 2.4 Product setup

4.WARRANTY AND SERVICE

4.1 Limited One Year Warranty

We warrants to its customers that this product will be free from all defects in materials and workmanship for a period of one (1) year from the date of the original purchase, subject to the following terms and conditions:

1. The sole responsibility of us under the Warranty is limited to either the repair or, at the option of us, replacement of the Scan Tool at no charge with Proof of Purchase. The sales receipt may be used for this purpose.
2. This warranty does not apply to damages caused by improper use, accident, flood, lightning, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.
3. We shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the Scan Tool. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

4.2 Service Procedures

For technical support, please contact your local store or distributor. If it becomes necessary to return the code reader for repair, contact your local distributor for more information.

Appendix 1

JIS	CCA
26A17L	185
26A19L	185
30A19L	210
34A19L	245
26B17L	185
28B17L	195
28B19L	190
34B17L	240
34B19L	240
36B20L	260
38B19L	265
38B20L	265
40B19L	270
42B19L	290
44B19L	310
44B20L	300
46B24L	295
50B24L	325
55B24L	370
60B24L	390
65B24L	425
32C24L	195
48D26L	250
50D20L	310